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Shahoian et al.(10) **Pub. No.: US 2008/0062144 A1**(43) **Pub. Date: Mar. 13, 2008**(54) **HAPTIC INTERFACE FOR TOUCH SCREEN EMBODIMENTS**

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SAN JOSE, CA 95164-0640 (US)**(57) **ABSTRACT**(73) Assignee: **Immersion Corporation**, San Jose, CA(21) Appl. No.: **11/981,221**(22) Filed: **Oct. 30, 2007****Related U.S. Application Data**

(63) Continuation of application No. 10/919,798, filed on Aug. 17, 2004, which is a continuation of application No. 09/917,263, filed on Jul. 26, 2001, now Pat. No. 6,822,635, and which is a continuation-in-part of application No. 09/487,737, filed on Jan. 19, 2000, now Pat. No. 6,429,846.

A haptic feedback touch control used to provide input to a computer. A touch input device includes a planar touch surface that provides position information to a computer based on a location of user contact. The computer can position a cursor in a displayed graphical environment based at least in part on the position information, or perform a different function. At least one actuator is also coupled to the touch input device and outputs a force to provide a haptic sensation to the user. The actuator can move the touchpad laterally, or a separate surface member can be actuated. A flat E-core actuator, piezoelectric actuator, or other types of actuators can be used to provide forces. The touch input device can include multiple different regions to control different computer functions.

